

## MICROPORELLUS STRAMINELLUS COMB. NOV., AND A NOTE ON PERENNIPORIA STIPITATA

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**ABSTRACT** — During a revision of the genus *Perenniporia* Murr., the type specimen of *Polyporus straminellus* Bres. and *P. stipitata* Ryv. have been examined besides some recent collections of the latter taxon. As a result, we concluded that *Pol. straminellus* better should be placed in *Microporellus* Murr. *P. stipitata* is so far be restricted to south and central America.

**KEY WORDS:** *Microporellus*, Taxonomy, Asia, South America.

**RÉSUMÉ** — Les spécimens type de *Polyporus straminellus* Bres. et de *Perenniporia stipitata* Ryv. ont été réexaminés, de même que quelques collectes récentes de ce dernier taxon. De ces études, nous concluons que *Pol. straminellus* appartient au genre *Microporellus* Murr. *P. stipitata* semble endémique à l'Amérique du Sud.

**MOTS CLÉS:** *Microporellus*, Taxonomie, Asie, Amérique du Sud.

### INTRODUCTION

*Polyporus straminellus* was described by Bresadola (1920) from a single specimen collected by v. Höhnelt in Java. The species was originally characterised as stipitate (“*stipite solido centrali vel excentrico*”), with a small straw coloured pileus, large pores and obovate basidiospores (Bresadola, 1920). The type specimen was apparently collected on soil (“*ad terram uti videtur*”, teste Bresadola). As a result of the type studies in Polyporaceae, Ryvarden (1988) transferred the species to *Perenniporia* Murr., without really arguing for this transfer, and redescribed the taxon.

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However, a careful reexamination of the type specimen have shown that the species is not related to *Perenniporia*. While having several features in common with *Perenniporia*, and especially with *P. stipitata* Ryv. (e.g. a small stipitate basidiocarp, dextrinoid vegetative hyphae), *Pol. straminellus* differs from the latter genus in microscopic features, especially the basidiospores morphology, and the differentiation of the vegetative hyphae. Basidiospores in the latter taxon are thin- to only slightly thick-walled, subglobose to lacrymoid, and without a germ pore, whereas they are typically thick-walled, usually truncate and with a germ pore in *Perenniporia*. The hyphal system is dimitic in *Pol. straminellus*, with indeterminate, unbranched skeletal hyphae. In *Perenniporia*, the hyphal system is usually described as di-trimitic with branched, arboriform vegetative hyphae (or skeleto-binding), (Corner, 1989 ; Ryvarden and Gilbertson, 1994).

*Pol. straminellus* is more closely related to some taxa described in *Microporellus* Murr., and especially to *M. grandiporus* Corner, from which it seems to differs only by the basidiospores size (Corner, 1987). *Microporellus* was intended for small stipitate polypores. The genus includes species mainly dimitic with strongly dextrinoid, indeterminate, unbranched skeletal hyphae and ellipsoid to subglobose basidiospores, thin- to slightly thick-walled (Corner, 1987). The new combination *Microporellus straminellus* (Bres.) C. Decock and Ryvarden is therefore proposed (basonym, *Polyporus straminellus* Bres., Ann. Mycol. 18, 32. 1920). The species is redescribed and illustrated.

Within *Perenniporia*, two other stipitate species have been described viz. *P. stipitata* Ryvarden from South America (Ryvarden, 1987), and *P. penangiana* Corner from South-East Asia (Corner, 1989). Both are macroscopically rather similar to *M. straminellus*. The type of *P. stipitata* has been revised in addition to some recent collections, mainly from O. The species is redescribed and illustrated. The type of *P. penangiana* has not been found in the Corner's herbarium, housed in E, and thus we have to rely on Corner's original description.

## MATERIAL AND METHODS

The study is based on types specimens from the herbaria O and BPI (herbarium acronyms are from Holmgren *et al.*, 1990). Specimens were examined in Melzer's reagent, KOH 4% and Lactic acid Cotton blue. Colours are described according to Kornerup and Wanscher (1981). All microscopic measurements were carried out in Melzer's reagent. In presenting the range of the size of microscopic elements, 5% of the measurements were excluded from each end and are given in parentheses (Dai and Niemelä, 1997). Arithmetic means of different measurements are also provided.

## DESCRIPTION

- Microporellus straminellus* (Bres.) C. Decock & Ryvarden, comb. nov. (Figs. 1, 4A)  
≡ *Polyporus straminellus* Bres., Ann. Mycol. 18, 32. 1920 (Basonym)  
≡ *Perenniporia straminella* (Bres.) Ryvarden, Mycotaxon 33, 323. 1988.

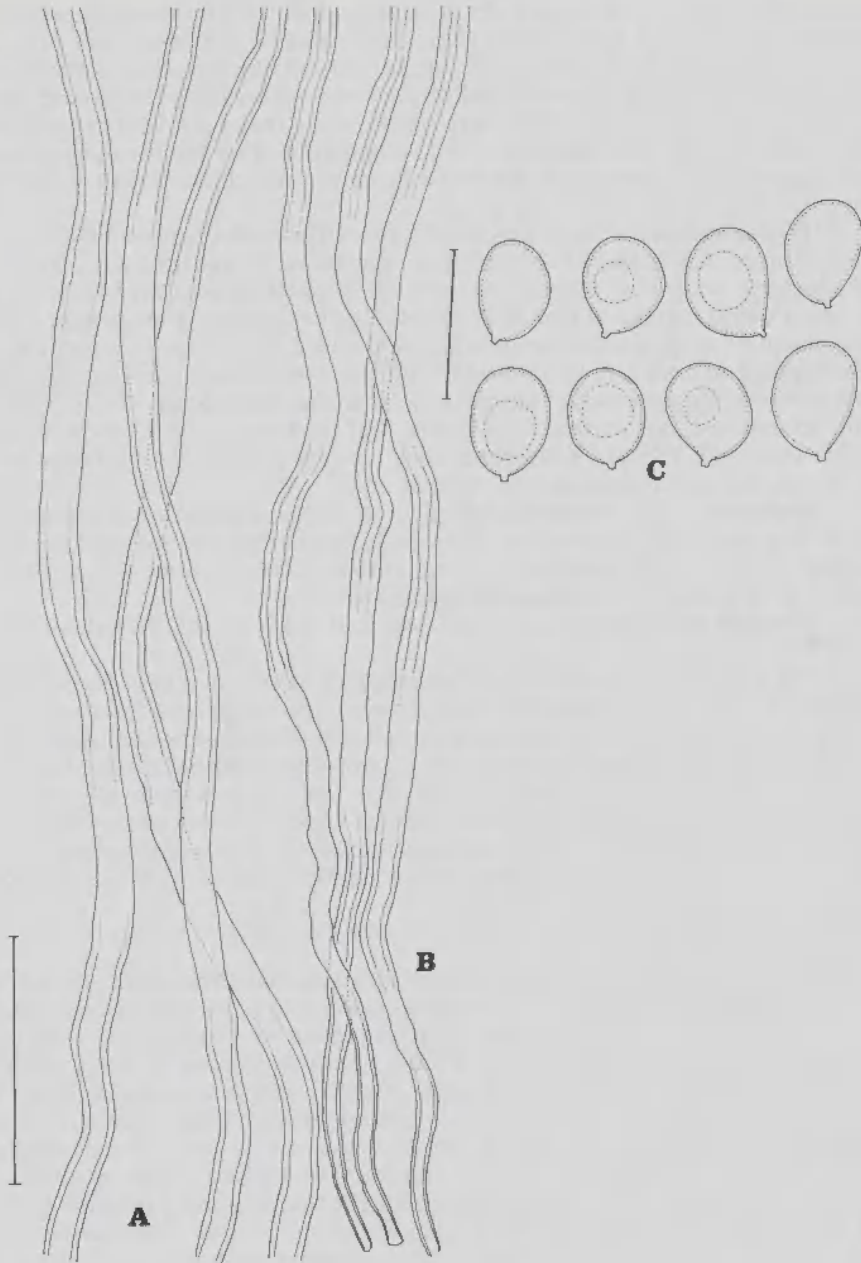


Fig. 1. — *Microporellus straminellus*. A. Vegetative hyphae in context. B. Vegetative hyphae in tubes. Scale bar = 50  $\mu\text{m}$ . C. Basidiospores. From the holotype. Scale bar = 10  $\mu\text{m}$ .

**Basidiocarp** stipitate, pleuropodal, (solitary?). **Stipe** solid, central to eccentric, glabrous, 2.5-3.5 cm long, 4-6 mm wide, (teste Bresadola, 1920). **Pileus** thin, applanate, flabelliform, up to 24 mm long, 28 mm large, 3 mm thick (5-7 cm wide, teste Bresadola, 1920), smooth to faintly concentrically sulcate and radially wrinkled, glabrous, dull, greyish orange (5B3), slightly concentrically zonate with darker/lighter band zone. **Margin** acute, regular, greyish orange (5B3). **Pore surface** even, (pale) greyish orange (5B4-6). **Pores** round to angular (sub-hexagonal) 0.7-1.5 pores/mm. **Pore layer** unique, creamy to yellowish grey, up to 1.8 mm thick. **Context** thin, up to 1 mm thick, greyish cream. **Crust** absent.

**Hyphal system** dimitic in tubes and context. **Generative** hyphae difficult to find, hyaline, clamped, few branched, 2-3  $\mu\text{m}$  wide. **Vegetative** hyphae hyaline to faintly yellowish, strongly dextrinoid, cyanophilic, swelling in KOH. **Stipe** absent from the type collection. **Context** composed mainly of skeletal hyphae, arising from clamps, unbranched, non septate, of indeterminate growth, thick-walled but with wide lumen, and then often collapsing on drying, (5.0)-5.5-8.0-(8.5)  $\mu\text{m}$  wide in the main part (average 6.8  $\mu\text{m}$ , N=36). **Tubes** mainly composed of skeletal hyphae, arising from clamps, of indeterminate growth, unbranched, not septate, thick-walled, but thickness variable, often with wide lumen in wider part, (3.5)-4.0-6.0(6.5)  $\mu\text{m}$  wide (average 5.1  $\mu\text{m}$ , N=30). **Pileus** surface made of compacted, periclinal, skeletal hyphae.

**Basidia** not seen. **Basidiospores** (globose) to sub-globose to lacrymoid, apex rounded, thin- to slightly thick-walled, cyanophilic, not dextrinoid, not amyloid, hyaline to pale yellowish (oily pale yellowish content), (6.0)-6.0-8.0(8.3)  $\times$  (4.8)-5.0-6.1(6.5)  $\mu\text{m}$ , (average 7.1  $\times$  5.6  $\mu\text{m}$ , N=30). **Chlamydospores** absent

**Specimen examined:** Java, on soil, leg. v. Höhnelt, n° 165, BPI (US0221482), HOLOTYPE.

The species is characterised by a small stipitate basidiocarp, large pores, a dimitic hyphal system with wide, strongly dextrinoid, unbranched vegetative hyphae, and sub-globose to lacrymoid thin- to slightly thick-walled, non dextrinoid basidiospores. Ryvar-den (1988) described it as dimidiate with a contracted base, probably misled by the type specimen which is fragmentary, and has lost its stipe. The species is apparently terricolous (Bresadola, 1920), an ecological feature often seen in *Microporellus* (Corner, 1987), and so far, not reported in *Perenniporia*. *M. straminellus* is related to *M. grandiporus* from Malaya and Brunei, from which it seems to differ only by smaller basidiospores (Corner, 1987).

*Perenniporia stipitata* Ryvar-den, Mycotaxon 28: 535, 1987. (Figs. 2, 3, 4B)

**Basidiocarp** stipitate, pleuropodal, solitary, seasonal. **Stipe** lateral, (2)-8-25 mm high, round to ellipsoid in section, 1-2-(3) mm in diam, with or without discoid widening at base, smooth, glabrous, concolourous with pileus. **Pileus** semi-circular to fan-shaped to spatulate, 8-41 mm wide, 8-24 mm long, 0.8-2.5 mm thick, smooth to faintly concentrically sulcate or slightly radially striated, dull, glabrous, greyish orange (5B2-5) to light brown (6D6-8, cinnamon), occasionally with brown to reddish brown patches (7-8E6-7). **Pore surface** even, pale greyish cream to orange white (4A2-3, 5A2) to greyish orange (5B3-5) on bruising. **Pores** regular, round to angular, (7)-8-10/mm, (56)-60-88-(108)  $\mu\text{m}$  in diam (average 72.7  $\mu\text{m}$ , N=136). **Dissepiments** entire, thin, smooth to slightly pruinose under the lens, (16)-20-44-(52)  $\mu\text{m}$  thick (average 29.1  $\mu\text{m}$ , N=90). **Tube layer** unique, concolourous with the context, 250-1500  $\mu\text{m}$  thick. **Context** corky, whitish to pale greyish orange, 0.5-2 mm thick. **Stipe** corky, white to pale greyish orange. **Crust** absent.

**Hyphal system** dimitic (to trimitic). **Generative** hyphae hyaline, thin to slightly thick-walled, with clamps, 2-4  $\mu\text{m}$  wide. **Vegetative** hyphae hyaline to faintly yellowish,

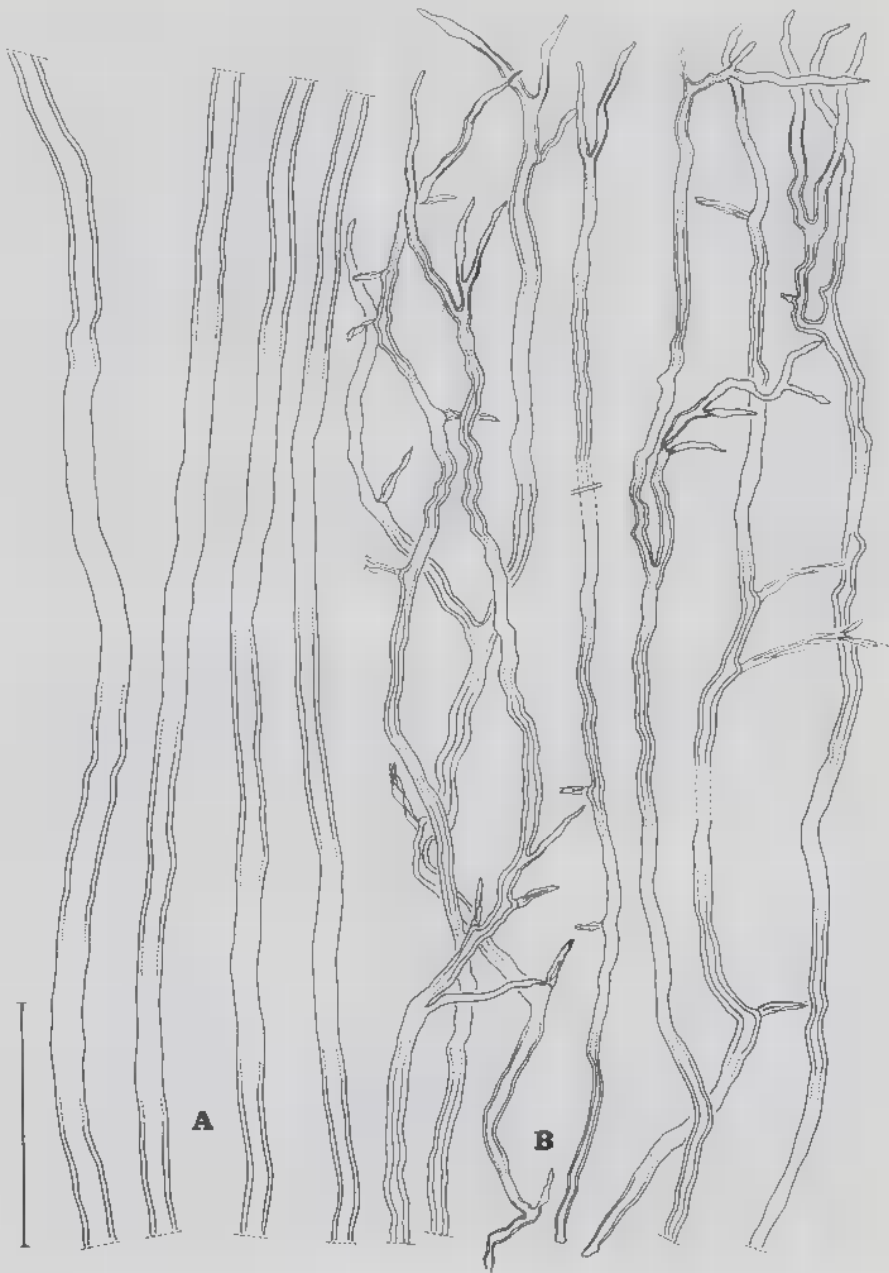


Fig. 2. — *Perenniporia stipitata*. A. Vegetative hyphae in context. B. Vegetative hyphae in tubes, from the isotype. Scale bar = 50  $\mu$ m.

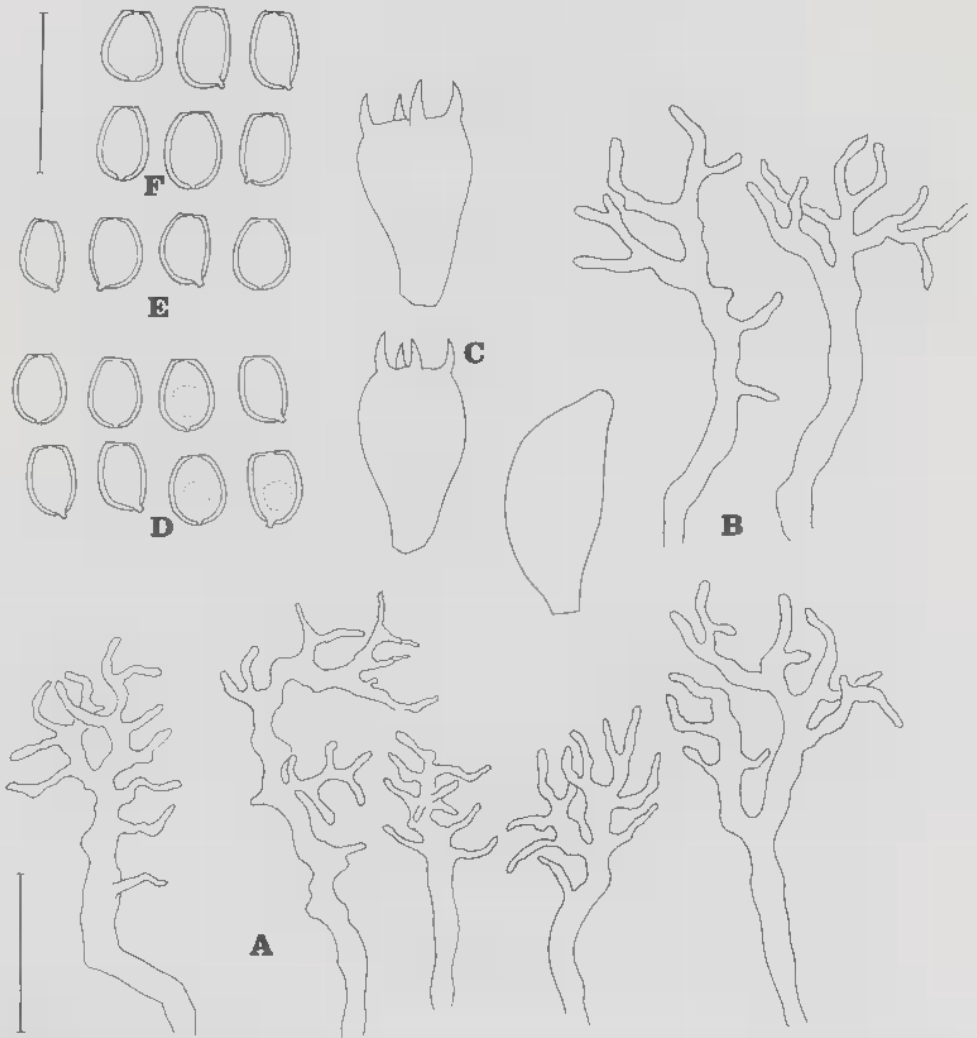


Fig. 3. — *Perenniporia stipitata*. Dendrohyphidia. A. from Ecuador, M. Nuñez 271; B. from French Guyana, G. Samuels 5720. C. Basidia and basidiole, from Ecuador, M. Nuñez 271. Basidiospores. D. from the isotype; E. from Ecuador, M. Nuñez 271. F. from French Guyana, G. Samuels 5720. Scale bar = 10  $\mu$ m.

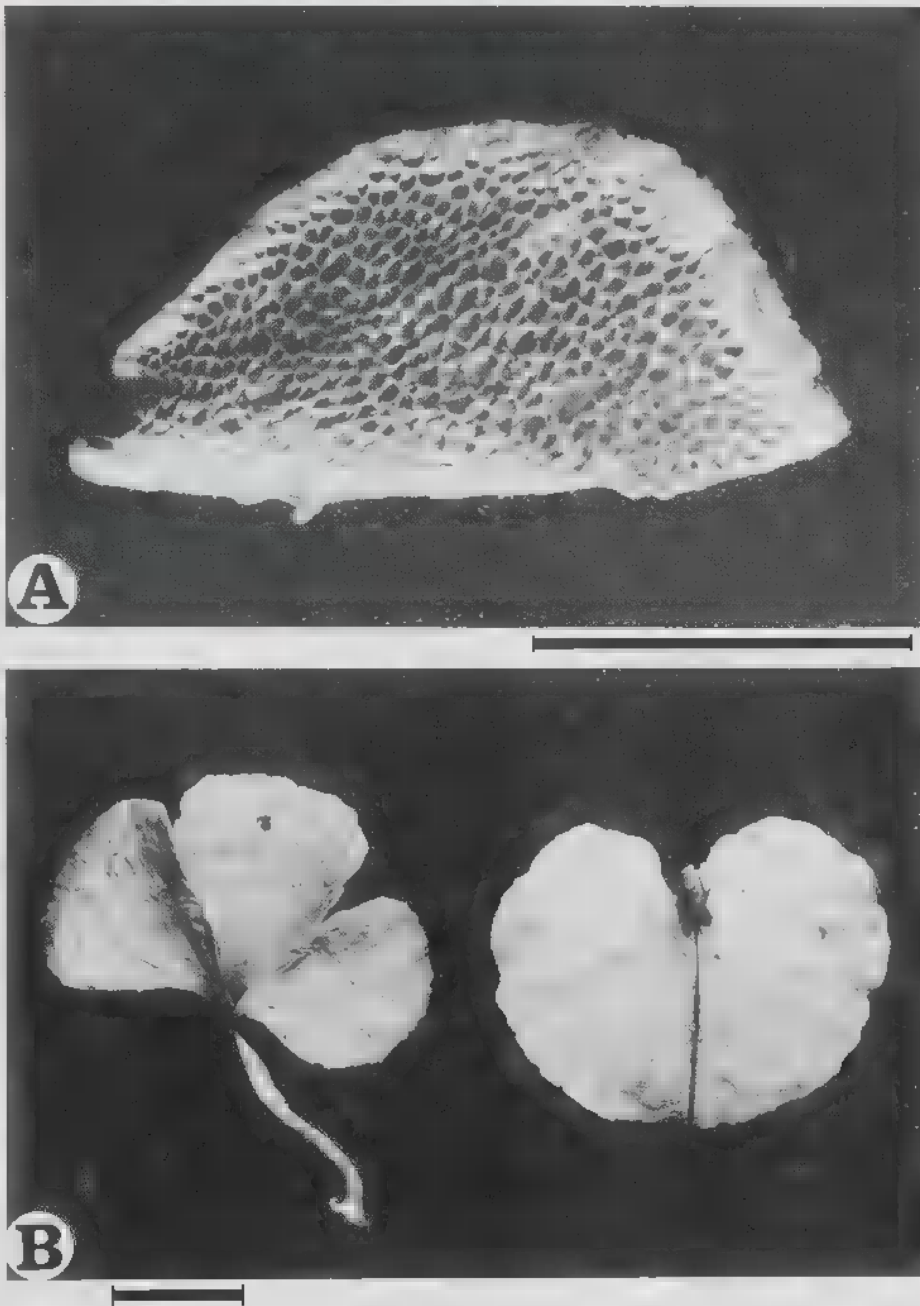


Fig. 4. — A. *Microporellus straminellus*, pores surface, holotype. B. *Perenniporia stipitata*, Pileus surface (left) and pore surface (right), from French Guyana, G. Samuels 5720. Scale bar = 10 mm.

dextrinoid and cyanophilic. **Context** and **stipe** mainly composed of skeletal hyphae, arising from a clamps or from a slightly branched mediate hyphae, thick-walled but with wide lumen, of indeterminate growth, not septate, unbranched, (2.5)-3.3-5.1-(5.7)  $\mu\text{m}$  wide (average 4.3  $\mu\text{m}$ , N=129), slightly wider on average in stipe. Branched hyphae either as mediate part of skeletal hyphae or as independent binding-like hyphae, variably present, from absent to rare, scattered, often localised near base of pileus, few branched, thick-walled, tortuous, geniculate, 2-3  $\mu\text{m}$  wide. **Tubes** composed mainly of skeletal hyphae, arising from clamps, thick-walled, of indeterminate growth, or more frequently ending in thin-walled, whip-like end, (2.0)-2.5-3.8-(4.0)  $\mu\text{m}$  wide (average 3.0  $\mu\text{m}$ , N=81), with few, short or often aborted, terminal or lateral (in the upper third) processes. **Surface** of stipe and pileus made of compacted, periclinal skeletal hyphae.

**Basidia** pear-shaped, shortly pedunculate, hyaline, thin-walled, with four sterigmata, 10-18  $\times$  6.0-7.5  $\mu\text{m}$  (average 12.1  $\times$  6.9, N=13). **Cystiodole** variably present, hyaline, thin-walled, fusiform, 14.5-17.5  $\times$  5.0-6.5  $\mu\text{m}$  (average 15.4  $\times$  5.5, N=10). **Basidiospores** ellipsoid to slightly ovoid to cylindrical, truncate, thick-walled, apiculus small to inconspicuous, 0-1 gutta, hyaline, not to slightly dextrinoid, cyanophilic, (4.0)-4.2-5.0-(5.5)  $\times$  (2.7)-3.0-3.8-(4.0)  $\mu\text{m}$ , (average 4.6  $\times$  3.4  $\mu\text{m}$ , N=115). **Chlamyospores** absent. **Dendrohyphidia** variably present, from absent to abundant, lining the pore surface, thin-walled, hyaline, with sub-apical to apical, straight to commonly tortuous short branches, ramified or not, 2-3  $\mu\text{m}$  wide.

**Specimens examined:** **Brazil**, Estrada Manaus-Caracarai ca Km 328, on dead trunk, I. Araujo, M.A. Sousa, J. Bernardi, K.P. Dumont, D. Hosford and G. Samuels, 16 Nov. 1977 (ISOTYPE), in O (also in INPA, NY); **Brazil**, Estrada Manaus-Caracarai, km 513, ac. Novo Paraíso, on dead trunk, I. Araujo, M.A. Sousa, J. Bernardi, K.P. Dumont, D. Hosford and G. Samuels, n° 78.376, 21 Nov. 1977, in O, INPA, NY; **Brazil**, São Paulo State, Reg. Santos, Cananeia, Iha do Cardoso, D. Pegler, K. Hjørstam and L. Ryvarden, n° L.R. 24989, 2-5 Feb. 1987, in O; **Columbia**, Buenaventura, Welden n° 4430, 26 Jun. 1968, ex. herb. Tulane, in Herbarium Universitas Osloensis and NO; **Ecuador**, Prov. Sucumbios, Reserva de Produccion Faunistica Cuyabeno, alt. 300 m., M. Nuñez, n° 271, 28 Jun-15 Jul. 1993 in O; **Ecuador**, Prov. Sucumbios, Reserva de Produccion Faunistica Cuyabeno, alt. 260-350 m., Terra firme, Añangu, Rio Napo, (78°35'W 0°10'S) T. Læssøe n° 43660, 16 Apr.-1 May 1983 in O; **French Guyana**, upper Maroulini River, Lange Soula, G. Samuels 5720, 12 Aug. 1987, in O; **French Guyana**, Matoury, Lamirande trail, first part, on dead wood, C. Decock, FG 2101, 13 Jan. 1997 in MUCL (MUCL 40244); **Trinidad**, Waller field, H. Fleming n° 618, 30 May 1960, in O, NY.

*P. stipitata* is characterised by its small greyish orange stipitate basidiocarp, very small pores, a mainly dimitic hyphal system with dextrinoid vegetative hyphae, and small ellipsoid to slightly ovoid truncate basidiospores, the latter not or weakly dextrinoid. Dendrohyphidia are variably present in the dissepiments, from totally absent (the case in the isotype) to very abundant, then giving the pore surface a pruinose appearance under the lens. These are similar to those found in the resupinate species *Perenniporia dendrohyphidia* Ryvarden (1988). Their abundance could be correlated with environmental conditions during the development, perhaps the relative humidity, but this has to be tested.

*P. stipitata* is well distinct and has seemingly no very close relative within *Perenniporia* except perhaps *P. penangiana* Corner, the type of which has not been examined. The main reasons for its place in the genus are the thick-walled, truncate, (dextrinoid) basidiospores, and, secondarily, the dextrinoid vegetative hyphae. The latter are mainly unbranched and with a wide lumen in the stipe and context, and only scarcely branched in the tubes, with processes mainly terminal (or lateral, in the upper part), short



and often aborted (fig. 2). *P. penangiana* has apparently a similar hyphal system in the stipe, context and tubes (Corner, 1987). The latter qualified the vegetative hyphae in the tubes as arboriform (or skeleto-binding hyphae). The branching pattern of some of the vegetative hyphae of the latter species, as illustrated by Corner, seems to be similar to that observed in *P. stipitata*.

Whether this branching pattern represent a step toward, or a reminiscence of an arboriform structure as described in other species of the genus (Corner, 1989, pers. obs) remain unknown.

*P. stipitata* is saprophytic on dead wood, and seems to be restricted to the south-central American tropical rain forest, as is evident from the list of specimens examined. The species have been also recorded from Panama (Ryvarden, 1987).

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